

PHA 4161.36 (3201/1A)
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of South, et al.

Art Unit 1614

Serial No. 10/691,958

Filed October 23, 2003

Confirmation No. 3471

For SUBSTITUTED POLYCYCLIC ARYL AND HETEROARYL PYRAZINONES
USEFUL FOR SELECTIVE INHIBITION OF THE COAGULATION CASCADE

February 4, 2004

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SIR:

INFORMATION DISCLOSURE STATEMENT

In accordance with 37 C.F.R. 1.97 and 1.98 and MPEP 609, and in compliance with the duty of disclosure set forth in 37 C.F.R. 1.56, applicants submit the attached PTO/SB/08A for consideration by the Patent and Trademark Office in the above-entitled application and to be made of record therein.


The references listed on the attached PTO/SB/08A have been previously submitted in parent application Serial No. 09/574,752 and, therefore, in accordance with MPEP 609, are not being provided at this time.

Respectfully submitted,

A handwritten signature in cursive script that reads "Bradley S. Schammel".

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PTO/SB/08A INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary) 				Complete if Known	
				Application Number	10/691,958
				Filing Date	October 23, 2003
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				First Named Inventor	M. South et al.
				Group Art Unit	1614
				Examiner Name	
Sheet	1	of	6	Attorney Docket No.	3201/1A(PHA 4161.36)

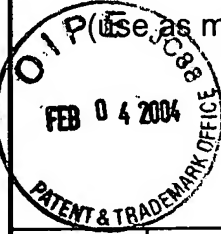
U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
	1	4,489,096	B1	Terao et al.	12-18-1984
	2	4,851,413	B1	Terao et al.	07-25-1989
	3	4,992,469	B1	Ozawa et al.	02-12-1991
	4	5,008,267	B1	Katakami, et al.	04-16-1991
	5	5,304,658	B1	Terao et al.	04-19-1994
	6	5,441,960	B1	Bernstein et al.	08-15-1995
	7	5,656,645	B1	Tamura et al.	08-12-1997
	8	5,658,930	B1	Tamura et al.	08-19-1997
	9	5,668,289	B1	Sanderson et al.	09-16-1997
	10	5,741,819	B1	Illig et al.	04-12-1998
	11	5,792,779	B1	Sanderson et al.	08-11-1998
	12	5,861,380	B1	Gyorkos et al.	01-19-1999
	13	5,866,573	B1	Sanderson et al.	02-02-1999
	14	5,869,487	B1	Coburn et al.	02-09-1999
	15	5,872,138	B1	Naylor-Olsen et al.	02-16-1999

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	16	6,011,158	B1	Tamura et al.	01-04-2000
	17	6,037,356	B1	Lu et al.	03-14-2000
	18	6,180,627	B1	Blagg et al.	01/30/2001

FOREIGN PATENT DOCUMENTS

Examiner Initials*		Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁶
		Office	Number ⁴	Kind Code ² (if known)			
	19	DE	198 51 421	A1	Boehringer Ingelheim Pharma KG	05-11-2000	A
	20	EP	354 495	A1	Godecke Aktiengesellschaft	02-14-1990	A
	21	EP	528 633	B1	Zeneca Limited	02-24-1993	
	22	EP	826 671	A1	The Green Cross Corporation	03-04-1998	
	23	EP	936 216	A1	Nippon Kayaku Kabushiki Kaisha	08-18-1999	
	24	EP	940 400	A1	Yoshitomi Pharmaceutical Industries, Ltd.	09-08-1999	
	25	EP	997 474	A1	Pfizer Inc	05-03-2000	
	26	WO	93/21214	A1	Zeneca Limited	10-28-1993	
	27	WO	96/18644	A1	Corvas International Inc.	06-20-1996	
	28	WO	96/33974	A1	The Green Cross Corporation (abstract)	10-31-1996	

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	29	WO	96/39380	A1	3-Dimensional Pharmaceuticals, Inc.	12-12-1996	
	30	WO	96/40100	A1	3-Dimensional Pharmaceuticals, Inc.	12-19-1996	
	31	WO	97/01336	A1	Merck & Co., Inc.	01-16-1997	
	32	WO	97/17274	A1	Merck & Co., Inc.	04-30-1998	
	33	WO	97/30708	A1	Merck & Co., Inc.	08-28-1997	
	34	WO	97/40024	A1	Merck & Co., Inc.	10-30-1997	
	35	WO	97/46207	A2	Corvas International Inc.	12-11-1997	
	36	WO	98/08840	A1	Merck & Co., Inc.	03-05-1998	
	37	WO	98/09949	A1	Nippon Kayaku Kabushiki Kaisha (abstract)	03-12-1998	
	38	WO	98/09987	A1	Biochem Pharma, Inc.	03-12-1998	
	39	WO	98/10763	A1	Merck & Co., Inc.	03-19-1998	
	40	WO	98/16525	A1	Cor Therapeutics, Inc.	04-23-1998	
	41	WO	98/16547	A1	Cor Therapeutics, Inc.	04-23-1998	
	42	WO	98/31670	A1	Merck & Co., Inc.	07-23-1998	
	43	WO	98/42342	A1	Merck & Co., Inc.	10-01-1998	
	44	WO	98/47876	A1	Akzo Nobel N.V.	10-29-1998	
	45	WO	98/50420	A1	Akzo Nobel N.V.	11-12-1998	
	46	WO	99/00121	A1	Eli Lilly and Company	01-07-1999	

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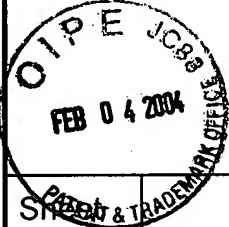
	47	WO	99/00126	A1	Eli Lilly and Company	01-07-1999	
	48	WO	99/00128	A1	Eli Lilly and Company	01-07-1999	
	49	WO	99/11267	A1	Merck & Co., Inc.	03-11-1999	
	50	WO	99/26920	A1	Corvas International, Inc.	06-03-1999	
	51	WO	99/26926	A1	3-Dimensional Pharmaceuticals, Inc.	06-03-1999	
	52	WO	99/36426	A1	Warner-Lambert Company	07-22-1999	
	53	WO	99/43660	A1	Neurogen Corporation	09-02-1999	
	54	WO	99/48892	A1	Merck & Sharp & Dohme Limited	09-30-1999	
	55	WO	99/59591	A1	Merck & Co., Inc.	11-25-1999	
	56	WO	99/61442	A1	Merck & Co., Inc.	12-02-1999	
	57	WO	99/62538	A1	Cortech Inc.	12-09-1999	
	58	WO	99/64446	A1	3-Dimensional Pharmaceuticals, Inc.	12-16-1999	
	59	WO	00/18762	A1	Merck & Co., Inc.	04-06-2000	
	60	WO	00/26210	A1	Merck & Co., Inc.	05-11-2000	
	61	WO	00/26211	A1	Merck & Co., Inc.	05-11-2000	
	62	WO	00/32574	A1	Sanofi-Synthelabo (abstract)	06-08-2000	
	63	WO	00/39102	A1	Du Pont Pharmaceuticals Company	07-06-2000	
	64	WO	00/69826	A1	Monsanto Company	11-23-2000	

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	65	WO	00/69832	A1	Monsanto Company	11-23-2000	
	66	WO	00/69833	A1	Monsanto Company	11-23-2000	

OTHER ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
	67	COBURN, C.A., "Small-molecule direct thrombin inhibitors 1997-2000." Expert Opinions on Therapeutic Patents, 2001, 721-738, Vol. 11, No. 5	
	68	HANDIN, R., "Bleeding and Thrombosis." Harrison's Principles of Internal Medicine, 12th Edition, 1991, pp. 348-353, McGraw-Hill, Inc., New York.	
	69	MAJERUS, et al. "Anticoagulant, Thrombolytic, and Antiplatelet Drugs." Goodman & Gilman's The Pharmacological Basis of Therapeutics, Ninth Edition, 1996, pp. 1341-1359, McGraw-Hill, New York.	
	70	PATEL et al., "Directed Aminomethylation of 3-Hydroxy-3(1H)-pyridinones and 3-hydroxy-4(1H)-pyridinones: Synthesis of iso-Deferiprone." Tetrahedron, 1996, pp. 1835-1840, Vol. 52, No. 5.	
	71	RAUCH, et al., Thrombus Formation on Atherosclerotic Plaques: Pathogenesis and Clinical Consequences, Annals of Internal Medicine, 2001, pp. 224-233, Vol. 134 - No. 3	
	72	SANDERSON et al., "L-373,890, An Achiral, Noncovalent, Subnanomolar Thrombin Inhibitor." Bioorganic & Medicinal Chemistry Letters, Vol. 7, No. 12, pp. 1497-1500, 1997.	
	73	TULINSKY, et al., Novel Asymmetric Synthesis of Atropisomeric 6-aryl pyrazinones, J. Org. Chem. 64:93-100, 1999.	
	74	VAN AKEN, et al., Anticoagulation: The Present and Future, Clin. Appl. Thrombosis/Hemostasis, 2001, pp. 195-204, Vol. 7 - No. 3	
	75	XP-002182132 - DARVAS, et al., "Investigation of the Common Mechanism of Action of Antibacterial Compounds Containing .gamma.-pyridone-.beta.-carboxylic acid Structure by Principal Component." Arzneimittel-Forsch., 1979, pp. 1334-1339, Vol. 29, 9.	

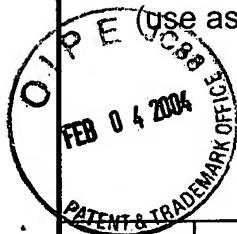
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	76	XP-002172033 - KOHAMA et al., "Preparation of Piperidinyloxyacetylaminobenzoylalanine Derivatives and Analogs as Anti-thrombotics." JP 07,233,148.	
	77	XP-002187583 - MOERNER, Hoppe-Seyler's Z. Physiol. Chem., 69, 1910; 357.	
	78	XP-002182410 - TRE COURT et al., "First Synthesis of (+)-harzianopyridone by Metalation of Polysubstituted O-pyridylcarbamates." J. Heterocycl. Chem., 1995, pp. 1117-1114, Vol. 32, No. 4.	

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